Claims

1. A circulating fluidized bed boiler (1) using solid fuels and the oxygen obtained by high temperature oxygen production membranes (7, 7a), characterized in that the membranes (7, 7a) are placed in the bed (6, 6a).

2. The boiler (1) as claimed in claim 1, characterized in that the membranes (7, 7a) are traversed by pressurized air.

3. The boiler (1) as claimed in the preceding claim, characterized in that the membranes (7, 7a) are placed in the fluidized solids (67) of the bed (6, 6a).

4. The boiler (1) as claimed in either of claims 3 and 4, characterized in that the membranes (7) are placed above the fluidized solids (67) of the outer bed (6).

5. The boiler (1) as claimed in one of the preceding claims, characterized in that the membranes (7) are placed on at least part of the periphery of the perimeter of the lower firebox (2).

6. The boiler (1) as claimed in one of the preceding claims, characterized in that the membranes (7) make up an assembly resting on the hearth (20) of the firebox (2).

7. The boiler (1) as claimed in one of the preceding claims, characterized in that the membranes (7) consist of very long tubes supported by intermediate plates (64).

8. The boiler (1) as claimed in one of claims 1 to 5, characterized in that the membranes (7) consist of

short tubes with intermediate chambers.

9. The boiler (1) as claimed in one of claims 1 to 5, characterized in that the membranes (7) consist of concentric tubes of which the inner tube (73) serves as support for the outer membrane tube (74).

10. The boiler (1) as claimed in the preceding claim, characterized in that a space is provided between the two tubes (73, 74).

11. The boiler (1) as claimed in the preceding claim, characterized in that the air is in countercurrent flow in the space between the two tubes (73, 74).

12. The boiler (1) as claimed in one of claims 3 to 10, characterized in that the bed (6) is placed outside the firebox (2).

13. The boiler (1) as claimed in one of the preceding claims, characterized in that one bed (6a) is placed along the inside walls of the firebox (2).

14. The boiler (1) as claimed in claim 1, characterized in that the air traversing the membranes (7) is conveyed to a waste heat boiler (9).

15. The boiler (1) as claimed in the preceding claim, characterized in that the waste heat boiler (9) is combined, in a sealed manner, with a waste heat boiler (8) for the flue gases leaving the firebox (2).